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EXAMINER

CHEN, SHIH CHAO

ART UNIT PAPER NUMBER

2821

DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,234

Applicant(s)

ELLIS ET AL.

Examiner

Shih-Chao Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 16, 17, 34 and 35 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-15, 18-22, 36 and 37 is/are allowed.
- 6) ☒ Claim(s) 23-32, 38 and 39 is/are rejected.
- 7) ☒ Claim(s) 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 23-32 and 38-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Solomon (U.S. Patent No. 6,252,553).

Regarding claim 23, Solomon teaches in figures 1-6 an offset top loaded monopole (TLM) comprising: a top plate [12], a ground plane [11], a dielectric material [14] between the top plate [12] and the ground plane [11] and a feed pin [18] connected to the top plate [12] substantially offset from the centre of the top plate somewhere within the top plate's interior area to provide a desired impedance of the offset TLM at the feed pin [18].

Regarding claim 24, Solomon teaches in figures 1-6 the offset TLM wherein the feed pin [18] is connected to a transmission line [22], the transmission line [22] being used for fine-tuning of the offset TLM.

Regarding claim 25, Solomon teaches in figures 1-6 the offset TLM wherein the transmission line [22] is connected to a power amplifier [38].

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Regarding claim 26, Solomon teaches in figures 1-6 the offset TLM wherein a power amplifier [38] is connected to the feed pin [18]

Regarding claim 27, Solomon teaches in figures 1-6 the offset TLM wherein the power amplifier [38] is a broadband power amplifier.

Regarding claim 28, Solomon teaches in figures 1-6 the offset TLM wherein the dielectric material is air (See col. 6, lines 11-14).

Regarding claim 29, Solomon teaches in figures 1-6 the offset TLM wherein the dielectric material is epoxy/glass (See col. 6, lines 11-14).

Regarding claim 30, Solomon teaches in figures 1-6 the offset TLM wherein the dielectric material is alumina (See col. 6, lines 11-14).

Regarding claim 31, Solomon teaches in figures 1-6 the offset TLM wherein the dielectric material is quartz (See col. 6, lines 11-14).

Regarding claim 32, Solomon teaches in figures 1-6 the offset TLM wherein the dielectric material is polytetra fluoroethylene (See col. 6, lines 11-14).

Regarding claim 38, Solomon teaches in figures 1-6 an offset top loaded monopole (TLM) comprising of: a rectangular top-plate [12], having a dimension L and a dimension W, a ground plane [11] having dimensions larger than those of the top-plate [12] (See FIG. 1A), and a dielectric material [14] sandwiched between the top-plate [12] and ground plane [11]; a feed pin [18] connected to the top-plate [12] somewhere within the top-plate's interior area; a length of transmission line [22] connected to the end of the feed pin [18] that is not connected to the top-plate [12].

Regarding claim 39, Solomon teaches in figures 1-6 a communication device comprising: an offset top loaded monopole [10] having a top plate [12], a ground plane [11], and a feed pin [18] connected to the top plate [12] somewhere within the top plate's interior area; a power amplifier [38]; and a transmission line [22] connecting the feed pin [18] to the power amplifier [38].

Allowable Subject Matter

3. Claims 1-15, 18-22 and 36-37 are allowed.
4. Claim 33 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claims 1-15 and 22 is the inclusion of the limitation of the first and the second shorting pins directly connecting to the top plate somewhere within the top plate's interior area and to the ground plane. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which make these claims allowable over the prior art.

The primary reason for the allowance of claim 21 is the inclusion of the limitation of the feed pin and the two shorting pins form a right angle. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught

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or suggested by the prior art of record which make these claims allowable over the prior art.

The prior art does not disclose or fairly suggest the planar inverted-F antenna tuned at an operating frequency f_0 and providing a class-F load impedance as required by claim 33.

The primary reason for the allowance of claims 18-19 and 36 is the inclusion of the limitation of adjusting the length of the transmission line to fine tune the input impedance of the PIFA at f_0 and to maintain the desired harmonic loading at the second and third harmonics of f_0 . It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which make these claims allowable over the prior art.

The primary reason for the allowance of claims 20 and 37 is the inclusion of the limitation of scaling the length of the top plate by a factor of $(f_0 / f_1)^2$. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which make these claims allowable over the prior art.

Response to Arguments

6. Applicant's arguments with respect to claims 23 and 38-39 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Chao Chen whose telephone number is (703) 306-2721. The examiner can normally be reached on Monday-Friday from 7 AM to 4:30 PM, First Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (703) 308-4856. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Shih-Chao Chen


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SXC
September 30, 2003



Don Wong
Supervisory Patent Examiner
Technology Center 2800